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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,475	06/23/2003	Harry J. Klee	UF-325XC1	2685

23557 7590 08/10/2006

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EXAMINER
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KALLIS, RUSSELL

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/602,475

Applicant(s)

KLEE ET AL.

Examiner

Russell Kallis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 21-23, 37-39 and 47-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-20, 24-36 and 40-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 and 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: attached sequence report.

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of an *etr1* amino acid sequence of SEQ ID NO: 1 in the reply filed on 5/26/2006 is acknowledged. Claims 7-9, 21-23, 37-39, and 47-56 drawn to a non-elected invention are withdrawn. Claims 1-56 are pending. Claims 1-6, 10-20, 24-36, and 40-46 are examined.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 10, 14-20, 24, 27-36, 40 and 43-46 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,294,716 filed 16 September 1996.

The claims are broadly drawn to an *etr1* coding sequence, vectors comprising the *etr1* sequence; plants transformed therewith and methods of decreasing flower fruit or leaf drop in plants transformed thereby.

U.S. Patent 6,294,716 teaches SEQ ID NO: 2 encoding an *ert1* ethylene response polypeptide from *Arabidopsis* having a base substitution of a cysteine at position 65 in place of a tyrosin amino acid (see attached sequence report result 6; and claims 5-6, 9, 12-14, 19-20, 25-28 and 32); methods of decreasing the response I in plants transformed therewith; and plants thereof; wherein the tissue and/or temporal specificity for expression of the modified ETR

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nucleic acid is controlled by selecting appropriate expression regulation sequences to target to the location and/or time of expression of the transformed nucleic acid (Abstract; claims 13-14; claims 27-28; column 16 lines 31-59, column 17 lines 49-62, and column 23 lines 18-23); and thus the reference teaches all the limitations of claims 1-6, 10, 14-20, 24, 27-36, 40 and 43-46.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10-20, 24-36 and 40-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,294,716 issued 25<sup>th</sup> of September 2001 in view of Hudspeth R. *et al.* Plant Molecular Biology, 1996, Vol. 31; pp. 911-916.

The claims are broadly drawn to an *etr1* coding sequence, vectors comprising the *etr1* sequence; plants transformed therewith and methods of decreasing flower fruit or leaf drop in plants transformed thereby.

U.S. Patent 6,294,716 teaches SEQ ID NO: 2 encoding an *ert1* ethylene response polypeptide from *Arabidopsis* having a base substitution of a cysteine at position 65 in place of a tyrosine amino acid (see attached sequence report result 6; and claims 5-6, 9, 12-14, 19-20, 25-28 and 32); methods of decreasing the response I in plants transformed therewith; and plants thereof; wherein the tissue and/or temporal specificity for expression of the modified ETR nucleic acid is controlled by selecting appropriate expression regulation sequences to target to the location and/or time of expression of the transformed nucleic acid (Abstract; claims 13-14;

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claims 27-28; column 16 lines 31-59, column 17 lines 49-62, and column 23 lines 18-23); and thus the reference teaches all the limitations of claims 1-6, 10, 14-20, 24, 27-36, 40 and 43-46.

U.S. Patent does not teach a chitinase promoter from cotton or functional fragment thereof.

Hudspeth teaches isolated promoter sequences from cotton chitinase genes that comprise a functional fragment of SEQ ID NO: 8 (see page 911 column 2 last paragraph to page 912 column 1 line 8; page 913 column 2, and page 915 last paragraph).

It would have been obvious modify the invention of U.S. Patent 6,294,716 to include a functional portion of a chitinase promoter from cotton taught by Hudspeth. One of ordinary skill in the art would have been motivated by the teachings of both U.S. Patent 6,294,716 and Hudspeth that promoters induced by ethylene are useful in the art of genetic engineering of plants, that abscission in plants is controlled by ethylene as taught by U.S. Patent 6,294,716, that the cotton chitinase gene is induced by ethylene, and that one of ordinary skill in the art would have a reasonable expectation of success in utilizing the functional portion of the promoter taught by Hudspeth to decrease the response to ethylene in plant tissue and thereby reducing the ethylene regulated process of abscission in plants and thus decrease fruit, leaf or flower drop in a plant, wherein the choice of a functional fragment of SEQ ID NO: 8 or the functional fragment of a cotton chitinase promoter is an obvious design choice given the lack of criticality.

All claims are rejected.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kallis whose telephone number is (571) 272-0798. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Russell Kallis Ph.D.  
August 4, 2006

RUSSELL P. KALLIS, PH.D.  
PRIMARY EXAMINER

A handwritten signature in cursive script that reads "Russell Kallis".

*attached sequence report*

## RESULT 6

US-08-714-524D-2

Sequence 2, Application US/08714524D

; Patent No. 6294716

; GENERAL INFORMATION:

; APPLICANT: Meyerowitz, Elliott M

; APPLICANT: Chang, Caren

; APPLICANT: Bleecker, Anthony B

; TITLE OF INVENTION: PLANTS HAVING MODIFIED RESPONSE TO ETHYLENE

; FILE REFERENCE: a-57515-4

; CURRENT APPLICATION NUMBER: US/08/714,524D

; CURRENT FILING DATE: 1996-09-16

; NUMBER OF SEQ ID NOS: 56

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 2

; LENGTH: 2787

; TYPE: DNA

; ORGANISM: Arabidopsis thaliana

; FEATURE:

; NAME/KEY: CDS

; LOCATION: (188)..(2401)

US-08-714-524D-2

## Alignment Scores:

Pred. No.:	0	Length:	2787
Score:	3720.00	Matches:	737
Percent Similarity:	99.9%	Conservative:	0
Best Local Similarity:	99.9%	Mismatches:	1
Query Match:	99.8%	Indels:	0
DB:	3	Gaps:	0

US-10-602-475A-1 (1-738) x US-08-714-524D-2 (1-2787)

Qy	1	MetGluValCysAsnCysIleGluProGlnTrpProAlaAspGluLeuLeuMetLysTyr	20
Db	188	ATGGAAGTCTGCAATTGTATTGAACCGCAATGGCCAGCGGATGAATTGTTAATGAAATAC	247
Qy	21	GlnTyrIleSerAspPhePheIleAlaIleAlaTyrPheSerIleProLeuGluLeuIle	40
Db	248	CAATACATCTCCGATTTCTTCATTGCGATTGCGTATTTTCGATTCCTCTTGAGTTGATT	307
Qy	41	TyrPheValLysLysSerAlaValPheProTyrArgTrpValLeuValGlnPheGlyAla	60
Db	308	TACTTTGTGAAGAAATCAGCCGTGTTCCGTATAGATGGGTACTTGTTTCAGTTTGGTGCT	367
Qy	61	PheIleValLeuTyrGlyAlaThrHisLeuIleAsnLeuTrpThrPheThrThrHisSer	80
Db	368	TTTATCGTTCTTTGTGGAGCAACTCATCTTATTAAGTTTACTTACGACATTCG	427
Qy	81	ArgThrValAlaLeuValMetThrThrAlaLysValLeuThrAlaValValSerCysAla	100
Db	428	AGAACCGTGGCGCTTGTGATGACTACCGGAAGGTGTTAACCGCTGTTGTCTCGTGTGCT	487
Qy	101	ThrAlaLeuMetLeuValHisIleIleProAspLeuLeuSerValLysThrArgGluLeu	120
Db	488	ACTGCGTTGATGCTTGTTCATATTATTCCTGATCTTTTGAGTGTTAAGACTCGGGAGCTT	547
Qy	121	PheLeuLysAsnLysAlaAlaGluLeuAspArgGluMetGlyLeuIleArgThrGlnGlu	140
Db	548	TTCTTGAAAAATAAAGCTGCTGAGCTCGATAGAGAAATGGGATTGATTGAACTCAGGAA	607

Qy	141	GluThrGlyArgHisValArgMetLeuThrHisGluIleArgSerThrLeuAspArgHis	160
Db	608	GAAACCGGAAGGCATGTGAGAATGTTGACTCATGAGATTAGAAGCACTTTAGATAGACAT	667
Qy	161	ThrIleLeuLysThrThrLeuValGluLeuGlyArgThrLeuAlaLeuGluGluCysAla	180
Db	668	ACTATTTTAAAGACTACACTTGTGAGCTTGGTAGGACATTAGCTTTGGAGGAGTGTGCA	727
Qy	181	LeuTrpMetProThrArgThrGlyLeuGluLeuGlnLeuSerTyrThrLeuArgHisGln	200
Db	728	TTGTGGATGCCTACTAGAACTGGGTTAGAGCTACAGCTTCTTATACACTTCGTCATCAA	787
Qy	201	HisProValGluTyrThrValProIleGlnLeuProValIleAsnGlnValPheGlyThr	220
Db	788	CATCCCGTGGAGTATACGGTTCCTATTCAATTACCGGTGATTAACCAAGTGTGTTGGTACT	847
Qy	221	SerArgAlaValLysIleSerProAsnSerProValAlaArgLeuArgProValSerGly	240
Db	848	AGTAGGGCTGTAAAAATATCTCCTAATTCTCCTGTGGCTAGGTTGAGACCTGTTTCTGGG	907
Qy	241	LysTyrMetLeuGlyGluValValAlaValArgValProLeuLeuHisLeuSerAsnPhe	260
Db	908	AAATATATGCTAGGGGAGGTGGTCGCTGTGAGGGTCCGCTTCTCCACCTTTCTAATTTT	967
Qy	261	GlnIleAsnAspTrpProGluLeuSerThrLysArgTyrAlaLeuMetValLeuMetLeu	280
Db	968	CAGATTAATGACTGGCCTGAGCTTTCAACAAAGAGATATGCTTTGATGGTTTTGATGCTT	1027
Qy	281	ProSerAspSerAlaArgGlnTrpHisValHisGluLeuGluLeuValGluValValAla	300
Db	1028	CCTTCAGATAGTGCAAGGCAATGGCATGTCCATGAGTTGGAACCTCGTTGAAGTCGTCGCT	1087
Qy	301	AspGlnValAlaValAlaLeuSerHisAlaAlaIleLeuGluGluSerMetArgAlaArg	320
Db	1088	GATCAGGTGGCTGTAGCTCTCTCATGCTGCGATCCTAGAAGAGTCGATGCGAGCTAGG	1147
Qy	321	AspLeuLeuMetGluGlnAsnValAlaLeuAspLeuAlaArgArgGluAlaGluThrAla	340
Db	1148	GACCTTCTCATGGAGCAGAATGTTGCTCTTGATCTAGCTAGACGAGAAGCAGAAACAGCA	1207
Qy	341	IleArgAlaArgAsnAspPheLeuAlaValMetAsnHisGluMetArgThrProMetHis	360
Db	1208	ATCCGTGCCCGCAATGATTTCTAGCGGTTATGAACCATGAAATGCGAACACCGATGCAT	1267
Qy	361	AlaIleIleAlaLeuSerSerLeuLeuGlnGluThrGluLeuThrProGluGlnArgLeu	380
Db	1268	GCGATTATTGCACTCTCTTCTTACTCCAAGAAACGGAACCTAACCCCTGAACAAAGACTG	1327
Qy	381	MetValGluThrIleLeuLysSerSerAsnLeuLeuAlaThrLeuMetAsnAspValLeu	400
Db	1328	ATGGTGGAACAATACTTAAAGTAGTAACCTTTTGGCAACTTTGATGAATGATGTCTTA	1387
Qy	401	AspLeuSerArgLeuGluAspGlySerLeuGlnLeuGluLeuGlyThrPheAsnLeuHis	420
Db	1388	GATCTTTCAAGGTTAGAAGATGGAAGTCTTCAACTTGAACCTGGGACATTCAATCTTCAT	1447
Qy	421	ThrLeuPheArgGluValLeuAsnLeuIleLysProIleAlaValValLysLysLeuPro	440
Db	1448	ACATTATTTAGAGAGGTCTCAATCTGATAAAGCCTATAGCGGTTGTTAAGAAATTACCC	1507
Qy	441	IleThrLeuAsnLeuAlaProAspLeuProGluPheValValGlyAspGluLysArgLeu	460



Db	1508		ATCACACTAAATCTTGCACCAGATTGGCCAGAAATTTGTTGTTGGGGATGAGAAACGGCTA	1567
Qy	461		MetGlnIleIleLeuAsnIleValGlyAsnAlaValLysPheSerLysGlnGlySerIle	480
Db	1568		ATGCAGATAATATTAAATATAGTTGGTAATGCTGTGAAATTCTCCAAACAAGGTAGTATC	1627
Qy	481		SerValThrAlaLeuValThrLysSerAspThrArgAlaAlaAspPhePheValValPro	500
Db	1628		TCCGTAACCGCTCTTGTACCAAGTCAGACACACGAGCTGCTGACTTTTTTGTCTGTGCCA	1687
Qy	501		ThrGlySerHisPheTyrLeuArgValLysValLysAspSerGlyAlaGlyIleAsnPro	520
Db	1688		ACTGGGAGTCATTTCTACTTGAGAGTGAAGTAAAGACTCTGGAGCAGGAATAAATCCT	1747
Qy	521		GlnAspIleProLysIlePheThrLysPheAlaGlnThrGlnSerLeuAlaThrArgSer	540
Db	1748		CAAGACATTCCAAAGATTTTCACTAAATTTGCTCAAACACAATCTTTAGCGACGAGAAGC	1807
Qy	541		SerGlyGlySerGlyLeuGlyLeuAlaIleSerLysArgPheValAsnLeuMetGluGly	560
Db	1808		TCGGGTGGTAGTGGGCTTGGCCTCGCCATCTCCAAGAGGTTTGTGAATCTGATGGAGGGT	1867
Qy	561		AsnIleTrpIleGluSerAspGlyLeuGlyLysGlyCysThrAlaIlePheAspValLys	580
Db	1868		AACATTTGGATTGAGAGCGATGGTCTTGAAAAGGATGCACGGCTATCTTTGATGTTAAA	1927
Qy	581		LeuGlyIleSerGluArgSerAsnGluSerLysGlnSerGlyIleProLysValProAla	600
Db	1928		CTTGGGATCTCAGAACGTTCAAACGAATCTAAACAGTCGGGCATACCGAAAGTTCCAGCC	1987
Qy	601		IleProArgHisSerAsnPheThrGlyLeuLysValLeuValMetAspGluAsnGlyVal	620
Db	1988		ATTCCCCGACATTCAAATTTCACTGGACTTAAGGTTCTTGTCATGGATGAGAACGGGGTA	2047
Qy	621		SerArgMetValThrLysGlyLeuLeuValHisLeuGlyCysGluValThrThrValSer	640
Db	2048		AGTAGAATGGTGACGAAGGGACTTCTGTACACCTGGGTGCGAAGTGACCACGGTGAGT	2107
Qy	641		SerAsnGluGluCysLeuArgValValSerHisGluHisLysValValPheMetAspVal	660
Db	2108		TCAAACGAGGAGTGTCTCCGAGTTGTGTCCCATGAGCACAAAGTGGTCTTCATGGACGTG	2167
Qy	661		CysMetProGlyValGluAsnTyrGlnIleAlaLeuArgIleHisGluLysPheThrLys	680
Db	2168		TGCATGCCCCGGGGTCGAAACTACCAATCGCTCTCCGTATTACAGAGAAATTCACAAAA	2227
Qy	681		GlnArgHisGlnArgProLeuLeuValAlaLeuSerGlyAsnThrAspLysSerThrLys	700
Db	2228		CAACGCCACCAACGGCCACTACTTGTGGCACTCAGTGGTAACACTGACAAATCCACAAAA	2287
Qy	701		GluLysCysMetSerPheGlyLeuAspGlyValLeuLeuLysProValSerLeuAspAsn	720
Db	2288		GAGAAATGCATGAGCTTTGGTCTAGACGGTGTGTTGCTCAAACCCGTATCACTAGACAAC	2347
Qy	721		IleArgAspValLeuSerAspLeuLeuGluProArgValLeuTyrGluGlyMet	738
Db	2348		ATAAGAGATGTTCTGTCTGATCTTCTCGAGCCCCGGGTACTGTACGAGGGCATG	2401